



Louisville Metro Air Pollution Control District  
701 West Ormsby Avenue, Suite 303  
Louisville, Kentucky 40203-3137



31 July 2018

## Federally Enforceable District Origin Operating Permit Statement of Basis

**Source:** Advance Ready Mix Concrete Inc. **Owner:** Advance Ready Mix Concrete Inc.  
Plant #5  
6801 Enterprise Drive  
Louisville, KY 40214  
161 North Shelby Street  
Louisville, KY 40202

Application Documents: See Table 8 in section I  
Public Comment Date: 06/30/2018  
Permitting Engineer: Martin J Hazelett Permit Number: O-1246-18-F  
Plant ID: 1246 SIC: 3273 NAICS: 327320

### Introduction:

This permit will be issued pursuant to District Regulation 2.17- *Federally Enforceable District Origin Operating Permits*. Its purpose is to limit the plant wide potential emission rates from this source to below major source threshold levels and to provide methods of determining continued compliance with all applicable requirements.

This is a standard FEDOOP permit renewal. This action also updates the permit format and equipment lists.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), 1 hr and 8 hr ozone (O<sub>3</sub>), particulate matter less than 10 microns (PM<sub>10</sub>); and unclassifiable for the 2012 standard for particulate matter less than 2.5 microns (PM<sub>2.5</sub>) and partial non-attainment area for sulfur dioxide (SO<sub>2</sub>).

### Permit Application Type:

☐ Initial issuance

Permit Revision

☒ Permit renewal

☐ Administrative

☐ Minor

☐ Significant

### Compliance Summary

☐ Compliance certification signed

☐ Compliance schedule included

☐ Source is out of compliance

☒ Source is operating in compliance

**I. Source Information**

1. **Product Description:** Advance Ready Mix Plant - #5 is a dry batch ready mix concrete plant.
2. **Process Description:** The dry components of concrete (cement, fly ash (cement supplement), sand, and aggregate) are measured and loaded with water into concrete ready mix/transit trucks and transported to offsite delivery locations.
3. **Site Determination:** There are no other facilities that are contiguous or adjacent, but there are three (3) other ready mix plants under common control. The other three plants under common control are listed below:

Advance Ready Mix – Plant #1, 820 E. Water St., Louisville KY 40202

Advance Ready Mix – Plant #2, 201 Clay St., Louisville, KY 40402

Advance Ready Mix – Plant #3, 3098 Element Lane, Louisville, KY 40299

4. **Emission Unit Summary:**

Emission Unit	Equipment Description
U1	Ready Mix Concrete Batch Plant (Truck Mix)
IA1	Storage Tanks
IA2	Water Heater

5. **Fugitive Sources:** The fugitive sources that were identified by the source are uncontrolled portions of the Erie Strayer ready-mix unit.

6. **Permit Revisions:**

Permit No.	Public Notice Date	Issue Date	Change Type	Description/Scope
27840-13-F	3/2/2013	5/18/2013	Initial	Initial Permit Issuance
O-1246-15-F	6/23/2015	7/24/2015	Admin	PM <sub>10</sub> < 25 tn/yr to be FEDOOP STAR Exempt Removed TAC requirements Deleted non-applicable Permit Shield, Off-Permit Document, and Alternative Operating Scenario references. Added controlled and uncontrolled emission factors to clarify how to calculate emissions.
O-1246-18-F	6/30/2018	7/31/2018	Renewal	Scheduled permit renewal

Permit No.	Public Notice Date	Issue Date	Change Type	Description/Scope
			Admin	Updated permit format, removed parts washer from permit (Insignificant activity), added 2.8 MMBtu/hr (indirect fired heat exchanger)- water heater, and batch admixture storage totes.

## 7. Construction Permit History:

Permit No.	Effective Date	Description
42-97-C	02/24/1997	Install Erie Strayer concrete transit mix batch plant
189-03-C	04/29/2003	Install Dust Collector C & W Model CP-35-219

## 8. Permit Renewal-Related Documents

Document Number	Date Received	Description
18299	3/18/2008	FEDDOOP Permit application
18296	11/29/2010	Application AP-2608 Solvent Metal cleaning
52844	1/2/2013	Application AP-100A change of ownership
59011	09/09/2013	Application AP-100A STAR exempt
90917	03/01/2018	Applications AP-100A AP-100B AP-100C AP-100D AP-100E AP-100H AP-100J AP-100K
91041	03/05/2018	Request for certificate of authorization/existence
91082	03/07/2018	Received certificate of authorization/existence
91256	03/21/2018	Requested documentation from site visit discovery
91306	03/27/2018	Follow up notes to the Advance Ready Mix Plant 5 (1246) site visit March 12, request updated AP 100B
91307	03/27/2018	Response : Follow up notes to the Advance Ready Mix Plant 5 (1246) site visit March 12, request updated AP 100B
91330	03/28/2018	Response: Follow up notes to the Advance Ready Mix Plant 5 (1246) site visit March 12, request updated AP 100B

Document Number	Date Received	Description
91842	05/02/2018	Response: Additional information for water heater
91843	05/02/2018	Response: Advance Plant 5 water heater specs

**9. Emission Summary:**

Pollutant	District Calculated Actual Emissions (ton/yr) 2011 Data	Pollutant that triggered Major Source Status (based on PTE)
CO	0	No
NO <sub>x</sub>	0	No
SO <sub>2</sub>	0	No
PM <sub>10</sub>	3.49	Yes
VOC	0.0019	No
Total HAPs	0	No
Single HAP	0	No

**10. Applicable Requirements**

- |                                    |   |                                    |
|------------------------------------|---|------------------------------------|
| <input type="checkbox"/> 40 CFR 60 | <input checked="" type="checkbox"/> SIP             | <input type="checkbox"/> 40 CFR 63 |
| <input type="checkbox"/> 40 CFR 61 | <input checked="" type="checkbox"/> District Origin | <input type="checkbox"/> Other     |

**11. Referenced MACT Federal Regulations:** There are no MACT federal regulations for this source.

**12. Referenced non-MACT Federal Regulations:** There are no non-MACT federal regulations for this source.

**II. Regulatory Analysis**

**1. Acid Rain Requirements:** Advance Ready Mix is not subject to the Acid Rain Program.

2. **Stratospheric Ozone Protection Requirements:** Title VI of the CAAA regulates ozone depleting substances and requires a phase-out of their use. This rule applies to any facility that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. Advance Ready Mix – Plant #5 does not manufacture, sell, or distribute any of the listed chemicals. The source's use of listed chemicals is that in fire extinguishers, chillers, air conditioners and other HVAC equipment.
3. **Prevention of Accidental Releases 112(r):** Advance Ready Mix - Plant #5 does not manufacture, process, use, store, or otherwise handle one or more of the regulated substances listed in 40 CFR Part 68, Subpart F, and District Regulation 5.15, *Chemical Accident Prevention Provisions*, in a quantity in excess of the corresponding specified threshold amount.
4. **Basis of Regulation Applicability**

- a. **Plantwide**

Advance Ready Mix - Plant #5 is a potential major source for the pollutant PM<sub>10</sub>. Regulation 2.17 – *Federally Enforceable District Origin Operating Permits* establishes requirements to limit the plant wide potential emission rates to below major source threshold levels and to provide methods of determining continued compliance with all applicable requirements.

Advance Ready Mix – Plant #5 requested a plant wide emission limit of 25 tons per year for the pollutant PM<sub>10</sub>.

Regulations 5.00, 5.01, 5.20, 5.21, 5.22, and 5.23 (STAR Program) establishes requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards. Advance Ready Mix – Plant #5 took the total plantwide limits of 25 tpy for criteria pollutants to be a FEDOOP STAR Exempt source.

Regulation 2.17, section 5.2, requires monitoring and record keeping to assure ongoing compliance with the terms and conditions of the permit. The owner or operator shall maintain all the required records for a minimum of 5 years and make the records readily available to the district upon request.

Regulation 2.17, section 7.2, requires stationary sources for which a FEDOOP is issued to submit an Annual Compliance Certification by April 15, of the following calendar year. In addition, as required by Regulation 2.17, section 5.2, the source shall submit an Annual Compliance Report to show compliance with the permit, by March 1 of the following calendar year. Compliance reports and compliance certifications shall be signed by a responsible official and shall include a certification statement per Regulation 2.17, section 3.5.

b. **Emission Unit U1 – Ready Mix Concrete Batch Plant**

i. **Equipment:**

Emission Point	Description	Applicable Regulation	Basis for Applicability
E1	Cement silo (split compartment), Erie- Strayer, LPG/MG-11T (capacity: 93 tons/hr)	7.08	Regulation 1.14 establishes the requirements for the control of fugitive particulate emissions for any source.  Regulation 7.08 establishes the requirements for PM emission from new processes that commences construction after September 1, 1976
E2	Fly ash silo (split compartment), Erie- Strayer LPG/MG -11T (capacity: 88 tons/hr)		
E3	Aggregate/sand weigh hopper [batcher] (capacity: 231 ton/hr)		
E4	Cement/Fly ash weigh hopper [batcher] (capacity: 50 ton/hr)		
E5	Truck Loadout (capacity: 281 ton/hr)		
E6	Aggregate/sand stockpiles; Aggregate/sand handling [delivery to ground storage pile]		
E7	Aggregate/sand handling; [front loader pile to conveyor fill hopper]		
E8	Aggregate/sand batch transfer conveyor [to truck loadout] (capacity: 231 ton/hr)		
E9	Aggregate/Sand bins (4), Erie-Strayer, LPG/MG -11T (capacity: 231 ton/hr)		
E10	Unpaved Roads & Yard Areas	1.14	
E11	Aggregate/sand bin loading conveyor [exterior](capacity: 231 ton/hr)	7.08	
E12	Aggregate/sand bin loading conveyor fill hopper [exterior] (capacity: 231 ton/hr)		

ii. **Standards/Operating Limits**

1) **Opacity**

- (a) Regulation 1.14, section 2.3 establishes standards for opacity.
- (b) Regulation 7.08, section 3.1.1 establishes an opacity standard of less than 20%, for processes that commenced construction after September 1, 1976

2) **PM/PM<sub>10</sub>**

- (a) Regulation 1.14, section 2.1 establishes work practice standards to prevent particulate matter from becoming airborne beyond the work site.
- (b) Regulation 2.17, section 5.1, allows the source to set a synthetic limit below the major source threshold. Source selected a synthetic limit of 25 ton/yr of the pollutant PM<sub>10</sub> to remain below the threshold limit for a criteria pollutant.
- (c) The emission standard for PM at each emission point with a process throughput of greater than 30 ton/hr is determined in accordance with Regulation 7.08, section 3.1.2 as follows:

$$\text{PM lb/hr limit} = 17.31 (\text{process weight ton/hr})^{0.16}.$$

III. **Other Requirements**

- 1. **Temporary Sources:** The source did not request to operate any temporary facilities.
- 2. **Short Term Activities:** The source did not report any short term activities.
- 3. **Emissions Trading:** N/A
- 4. **Alternative Operating Scenarios:** The source did not request any alternative operating scenarios. .
- 5. **Compliance History:** There were no notices of violation issued to this facility.

## 6. Calculation Methodology or Other Approved Method:

The owner or operator shall calculate emissions using emission factors and equations in this attachment unless other methods are approved in writing by the District.

### Emission Unit U1: Ready Mix Concrete Batch Plant (Truck Mix)

The tables supplied throughout the calculation methodology, list AP-42 emission factors, and those factors converted to lb pollutant/yd<sup>3</sup> concrete. This is an example calculation as follows for E1 whose emission factors are based on ton cement, converting the AP-42 emission factor to PM<sub>10</sub>/yd<sup>3</sup> concrete.

$$(\text{EF lb PM}_{10}/\text{ton cement}) * (\text{ton cement}/\text{yd}^3 \text{ concrete}) = (\text{lb PM}_{10}/\text{yd}^3 \text{ concrete})$$

$$(0.47 \text{ lb PM}_{10}/\text{ton cement}) * (0.2455 \text{ ton cement}/\text{yd}^3 \text{ concrete}) = (0.1154 \text{ lb PM}_{10}/\text{yd}^3 \text{ concrete})$$

### Emission Factor conversion to ton composite/yd<sup>3</sup> concrete

Concrete composition:	lbs composite/ yd <sup>3</sup> concrete	ton composite/ yd <sup>3</sup> concrete
Density	4024	2.012
Aggregate	1865	0.933
Sand	1428	0.714
Cement+Sup.	564	0.282
Water	167	0.083
Total	4024	2.012
lb cement	491	0.2455
cement Supplement (fly ash)	73	lbs/yard

### Emission Factors for Cement silo filling (E1)

	Uncontrolled			Controlled <sup>1</sup>		
Criteria Pollutant	AP-42 Emission Factor (lb/ton cement)	AP-42 EF converted (lb/yd <sup>3</sup> concrete) <sup>2</sup>	EF Source	AP-42 Emission Factor (lb/ton cement)	AP-42 EF converted (lb/yd <sup>3</sup> concrete) <sup>2</sup>	EF Source
PM	0.73	0.1792	AP-42, 11.12-2	0.00099	0.0002	AP-42, 11.12-2
PM <sub>10</sub>	0.47	0.1154	AP-42, 11.12-2	0.00034	8.35E-05	AP-42, 11.12-2
PM <sub>2.5</sub> <sup>3</sup>	0.47	0.1154	See footnote 3	0.00034	8.35E-05	See footnote 3
Arsenic	1.68E-06	4.12E-07	AP-42, 11.12-8	4.24E-09	1.04E-09	AP-42, 11.12-8
Beryllium	1.79E-08	4.39E-09	AP-42, 11.12-8	4.86E-10	1.19E-10	AP-42, 11.12-8

1 The controlled emission factors for Cadmium and total Phosphorus were calculated using the District default baghouse efficiency of 98%; controlled EF = (uncontrolled EF) \* (1-0.98)

2 AP-42 Emission Factors are converted to (lb pollutant/yd<sup>3</sup> concrete) for ease in calculation.

3 In the absence of a determined PM<sub>2.5</sub> emission factor, the District assumes the PM<sub>2.5</sub> emission factor equals PM<sub>10</sub>



	Uncontrolled			Controlled <sup>1</sup>		
Criteria Pollutant	AP-42 Emission Factor (lb/ton cement)	AP-42 EF converted (lb/yd <sup>3</sup> concrete) <sup>2</sup>	EF Source	AP-42 Emission Factor (lb/ton cement)	AP-42 EF converted (lb/yd <sup>3</sup> concrete) <sup>2</sup>	EF Source
Cadmium	2.34E-07	5.74E-08	AP-42, 11.12-8	4.68E-09	5.74E-08	AP-42, 11.12-8
Total Chromium	2.52E-07	6.19E-08	AP-42, 11.12-8	2.90E-08	7.12E-09	AP-42, 11.12-8
Lead	7.36E-07	1.81E-07	AP-42, 11.12-8	1.09E-07	2.68E-08	AP-42, 11.12-8
Manganese	2.02E-04	4.96E-05	AP-42, 11.12-8	1.17E-07	2.87E-08	AP-42, 11.12-8
Nickel	1.76E-05	4.32E-06	AP-42, 11.12-8	4.18E-08	1.03E-08	AP-42, 11.12-8
Total Phosphorus	1.18E-05	2.90E-06	AP-42, 11.12-8	2.36E-07	2.90E-06	AP-42, 11.12-8

### Emission Factors for Fly ash silo filling (E2)

	Uncontrolled <sup>4</sup>			Controlled		
Criteria Pollutant	AP-42 Emission Factor (lb/ton fly ash)	AP-42 EF converted (lb/yd <sup>3</sup> concrete)	EF Source	AP-42 Emission Factor (lb/ton fly ash)	AP-42 EF converted (lb/yd <sup>3</sup> concrete)	EF Source
PM	3.14	0.1146	AP-42, 11.12-2	0.0089	0.0003	AP-42, 11.12-2
PM10	1.1	0.0402	AP-42, 11.12-2	0.0049	1.79E-04	AP-42, 11.12-2
PM2.5 <sup>5</sup>	1.1	0.0402	See footnote 5	0.0049	1.79E-04	See footnote 5
Arsenic	5.00E-05	1.83E-06	AP-42, 11.12-8	1.00E-06	3.65E-08	AP-42, 11.12-8
Beryllium	4.52E-06	1.65E-07	AP-42, 11.12-8	9.04E-08	3.30E-09	AP-42, 11.12-8
Cadmium	9.90E-09	3.61E-10	AP-42, 11.12-8	1.98E-10	7.23E-12	AP-42, 11.12-8
Total Chromium	6.10E-05	2.23E-06	AP-42, 11.12-8	1.22E-06	4.45E-08	AP-42, 11.12-8
Lead	2.60E-05	9.49E-07	AP-42, 11.12-8	5.20E-07	1.90E-08	AP-42, 11.12-8
Manganese	1.28E-05	4.67E-07	AP-42, 11.12-8	2.56E-07	9.34E-09	AP-42, 11.12-8
Nickel	1.14E-04	4.16E-06	AP-42, 11.12-8	2.28E-06	8.32E-08	AP-42, 11.12-8
Total Phosphorus	1.77E-04	6.46E-06	AP-42, 11.12-8	3.54E-06	1.29E-07	AP-42, 11.12-8
Selenium	3.62E-06	1.32E-07	AP-42, 11.12-8	7.24E-08	2.64E-09	AP-42, 11.12-8

4 The uncontrolled emission factors for fly ash silo filling (E2) were calculated using the District default baghouse efficiency of 98%; uncontrolled EF = (controlled EF)/(1-0.98)

5 In the absence of a determined PM<sub>2.5</sub> emission factor, the District assumes the PM<sub>2.5</sub> emission factor equals PM<sub>10</sub>

$$\begin{aligned} \text{E1 lb pollutant} &= (\text{ton cement}) * \text{E1 EF (lb pollutant/ton cement)} \\ \text{E1 lb pollutant} &= (\text{concrete yds}^3) * \text{E1 EF (lb pollutant/concrete yds}^3) \\ \text{E2 lb pollutant} &= (\text{ton fly ash}) * \text{E2 EF (lb pollutant/ton fly ash)} \\ \text{E2 lb pollutant} &= (\text{concrete yds}^3) * \text{E2 EF (lb pollutant/concrete yds}^3) \end{aligned}$$

### Emission Factors for E3, E6, E7, E8, E9, E11, and E12

Criteria Pollutant	PM Uncontrolled		PM <sub>10</sub> Uncontrolled		EF Source
	AP-42 Emission Factor (lb PM/ton material)	AP-42 EF converted (lb PM/yd <sup>3</sup> concrete)	AP-42 Emission Factor (lb PM <sub>10</sub> /ton material) <sup>1</sup>	AP-42 EF converted (lb PM <sub>10</sub> /yd <sup>3</sup> concrete)	
Weigh hopper (E3)	0.0048	0.0079	0.00280	0.0046	AP-42, 11.12-2
Aggregate transfer (E6, E7, E8, E9, E11, E12)	0.0069	0.0064	0.00330	0.0031	AP-42, 11.12-2
Sand transfer (E6, E7, E8, E9, E11, E12)	0.0021	0.0015	0.00099	0.0007	AP-42, 11.12-2

PM and PM<sub>10</sub> per ton material defined as follows per AP-42:

Weigh hopper material = (sand + aggregate) in tons

Aggregate transfer = aggregate in tons

Sand transfer = sand in tons

E3 lb pollutant = (ton material) \* EF (lb PM/ton material)

E3 lb pollutant/yr = (concrete yds<sup>3</sup>/yr) \* EF (lb pollutant/concrete yds<sup>3</sup>)

E6 Aggregate (SCC 3-05-011-21) Delivery to ground storage pile

E7 Aggregate (SCC 3-05-011-21) from ground storage to A/S bin loading conveyor fill hopper

E6 Sand (SCC 3-05-011-22) Delivery to ground storage pile

E7 Sand (SCC 3-05-011-22) from ground storage to A/S bin loading conveyor fill hopper

E7 lb pollutant/yr = 2\*[(ton sand/yr) \* EF (lb pollutant/ton sand) + (ton aggregate/yr) \* EF (lb pollutant/ton aggregate)]

E7 lb pollutant/yr = 2\*[(concrete yds<sup>3</sup>/yr) \* EF Sand Transfer (lb pollutant/concrete yds<sup>3</sup>) + (concrete yds<sup>3</sup>/yr) \* EF Aggregate Transfer (lb pollutant/concrete yds<sup>3</sup>)]

E8 Aggregate/sand transfer conveyor (Weigh hopper conveyor to truck load out)

E8 lb pollutant/yr = [(ton sand/yr) \* EF (lb pollutant/ton sand) + (ton aggregate/yr) \* EF (lb pollutant/ton aggregate)]

E8 lb pollutant/yr = (concrete yds<sup>3</sup>/yr) \* EF Sand Transfer (lb pollutant/concrete yds<sup>3</sup>) + (concrete yds<sup>3</sup>/yr) \* EF Aggregate Transfer (lb pollutant/concrete yds<sup>3</sup>)

E9 A/S transfer to weigh hopper

E9 lb pollutant/yr = [(ton sand/yr) \* EF (lb pollutant/ton sand) + (ton aggregate/yr) \* EF (lb pollutant/ton aggregate)]

E9 lb pollutant/yr = (concrete yds<sup>3</sup>/yr) \* EF Sand Transfer (lb pollutant/concrete yds<sup>3</sup>) + (concrete yds<sup>3</sup>/yr) \* EF Aggregate Transfer (lb pollutant/concrete yds<sup>3</sup>)

E11 Aggregate (SCC 3-05-011-04) Transfer to elevated storage

E11 Sand (SCC 3-05-011-05) Transfer to elevated storage

$E11 \text{ lb pollutant/yr} = [(\text{ton sand/yr}) * EF (\text{lb pollutant/ton sand}) + (\text{ton aggregate/yr}) * EF (\text{lb pollutant/ton aggregate})]$

$E11 \text{ lb pollutant/yr} = (\text{concrete yds}^3/\text{yr}) * EF \text{ Sand Transfer (lb pollutant/concrete yds}^3) + (\text{concrete yds}^3/\text{yr}) * EF \text{ Aggregate Transfer (lb pollutant/concrete yds}^3)$

E12 Aggregate (SCC 3-05-011-23) Transfer to conveyor via fill hopper

E12 Sand (SCC 3-05-011-24) Transfer to conveyor via fill hopper

$E12 \text{ lb pollutant/yr} = [(\text{ton sand/yr}) * EF (\text{lb pollutant/ton sand}) + (\text{ton aggregate/yr}) * EF (\text{lb pollutant/ton aggregate})]$

$E12 \text{ lb pollutant/yr} = (\text{concrete yds}^3/\text{yr}) * EF \text{ Sand Transfer (lb pollutant/concrete yds}^3) + (\text{concrete yds}^3/\text{yr}) * EF \text{ Aggregate Transfer (lb pollutant/concrete yds}^3)$

#### E4: Cement/Fly ash weigh hopper [batcher]<sup>6</sup>

Criteria Pollutant	Uncontrolled		Controlled		EF Source
	AP-42 Emission Factor (lb pollutant/ton cement + supplement)	AP-42 EF converted (lb pollutant/yd <sup>3</sup> concrete)	AP-42 Emission Factor (lb pollutant/ton cement + supplement)	AP-42 EF converted (lb pollutant/yd <sup>3</sup> concrete)	
PM	1.118	0.3153	0.098	0.0276	AP-42, 11.12-2
PM10	0.31	0.0874	0.0263	0.0074	AP-42, 11.12-2
PM2.5 <sup>7</sup>	0.31	0.0874	0.0263	0.0074	See footnote 7
Arsenic	1.22E-05	3.44E-06	6.02E-07	1.70E-07	AP-42, 11.12-8
Beryllium	2.44E-07	6.88E-08	1.04E-07	2.93E-08	AP-42, 11.12-8
Cadmium	3.42E-08	9.64E-09	9.06E-09	2.55E-09	AP-42, 11.12-8
Total Chromium	1.14E-05	3.21E-06	4.10E-06	1.16E-06	AP-42, 11.12-8
Lead	3.62E-06	1.02E-06	1.53E-06	4.31E-07	AP-42, 11.12-8
Manganese	6.12E-05	1.73E-05	2.08E-05	5.87E-06	AP-42, 11.12-8
Nickel	1.19E-05	3.36E-06	4.78E-06	1.35E-06	AP-42, 11.12-8
Total Phosphorus	3.84E-05	1.08E-05	1.23E-05	3.47E-06	AP-42, 11.12-8
Selenium	2.62E-06	7.39E-07	1.13E-07	3.19E-08	AP-42, 11.12-8

$E4 \text{ lb pollutant/yr} = (\text{ton cement} + \text{supplement})/\text{yr} * EF (\text{lb pollutant/ton cement} + \text{supplement})$

$E4 \text{ lb pollutant/yr} = (\text{concrete yds}^3/\text{yr}) * EF (\text{lb pollutant/concrete yds}^3)$

<sup>6</sup> Without specified emission factors for cement/fly ash weigh hopper [batcher], the truck loadout (truck mix) emission factors are applied.

<sup>7</sup>In the absence of a determined PM<sub>2.5</sub> emission factor, the District assumes the PM<sub>2.5</sub> emission factor equals PM<sub>10</sub>

**E5: Truck loading (truck mix) (SCC 3-05-011-10)**

Criteria Pollutant	Uncontrolled		Controlled		EF Source
	AP-42 Emission Factor (lb pollutant/ton cement + supplement)	AP-42 EF converted (lb pollutant/yd <sup>3</sup> concrete)	AP-42 Emission Factor (lb pollutant/ton cement + supplement)	AP-42 EF converted (lb pollutant/yd <sup>3</sup> concrete)	
PM	1.118	0.3153	0.098	0.0276	AP-42, 11.12-2
PM10	0.31	0.0874	0.0263	0.0074	AP-42, 11.12-2
PM2.5 <sup>8</sup>	0.31	0.0874	0.0263	0.0074	See footnote 8
Arsenic	1.22E-05	3.44E-06	6.02E-07	1.70E-07	AP-42, 11.12-8
Beryllium	2.44E-07	6.88E-08	1.04E-07	2.93E-08	AP-42, 11.12-8
Cadmium	3.42E-08	9.64E-09	9.06E-09	2.55E-09	AP-42, 11.12-8
Total Chromium	1.14E-05	3.21E-06	4.10E-06	1.16E-06	AP-42, 11.12-8
Lead	3.62E-06	1.02E-06	1.53E-06	4.31E-07	AP-42, 11.12-8
Manganese	6.12E-05	1.73E-05	2.08E-05	5.87E-06	AP-42, 11.12-8
Nickel	1.19E-05	3.36E-06	4.78E-06	1.35E-06	AP-42, 11.12-8
Total Phosphorus	3.84E-05	1.08E-05	1.23E-05	3.47E-06	AP-42, 11.12-8
Selenium	2.62E-06	7.39E-07	1.13E-07	3.19E-08	AP-42, 11.12-8

E5 lb pollutant/yr = (ton cement + supplement)/yr \* EF (lb pollutant/ton cement + supplement)

E5 lb pollutant/yr = (concrete yds<sup>3</sup>/yr) \* EF (lb pollutant/concrete yds<sup>3</sup>)

**E13 Water Heater Emission Factors**

Emission Source	Pollutant	Natural Gas Emission Factor (lb/10 <sup>6</sup> scf natural gas combusted)		Emission Factor Source
		Uncontrolled	Controlled	
E13	NO <sub>x</sub>	100	100	AP-42, 1.4-1
	CO	84	84	AP-42, 1.4-1
	PM	0.52	0.52	Roy Huntley, EPA <sup>9</sup>
	PM <sub>10</sub>	.032	0.32	Roy Huntley, EPA <sup>9</sup>
	SO <sub>2</sub>	0.6	0.6	AP-42, 1.4-2
	VOC	5.5	5.5	AP-42, 1.4-2
	NH <sub>3</sub>	3.2	3.2	EPA WebFIRE

<sup>8</sup> In the absence of a determined PM<sub>2.5</sub> emission factor, the District assumes the PM<sub>2.5</sub> emission factor equals PM<sub>10</sub>

<sup>9</sup> The revised PM emission factors are from: "EPA's Emission Inventory and Analysis Group guidance 3/30/2012".

$$E = (X) * (EF \text{ lb}/10^6 \text{ scf}) * (1 \text{ ton}/2000 \text{ lb.})$$

Where: E = emissions (tons)

X = the amount of natural gas combusted ( $10^6$  scf)

[AP-42 EF (lb/MMBtu) converted to (lb/ $10^6$  scf) natural gas combusted]

### E13: Water Heater Emission Factors

Emission Source	Individual HAP/TAC	CAS	Natural Gas Emission Factor (lb/ $10^6$ scf natural gas combusted)		Emission Factor Source
			Uncontrolled	Controlled	
E13	2-Methylnaphthalene	91-57-6	2.40E-05	2.40E-05	AP-42, 1.4-3
	3-Methylchloranthrene	56-49-5	1.80E-06	1.80E-06	AP-42, 1.4-3
	DMBA	57-97-6	1.60E-05	1.60E-05	AP-42, 1.4-3
	Acenaphthene	83-32-9	1.80E-06	1.80E-06	AP-42, 1.4-3
	Acenaphthylene	208-96-8	1.80E-06	1.80E-06	AP-42, 1.4-3
	Anthracene	120-12-7	2.40E-06	2.40E-06	AP-42, 1.4-3
	Benz(a)anthracene	56-55-3	1.80E-06	1.80E-06	AP-42, 1.4-3
	Benzene	71-43-2	2.10E-03	2.10E-03	AP-42, 1.4-3
	Benzo(a)pyrene	50-32-8	1.20E-06	1.20E-06	AP-42, 1.4-3
	Benzo(b)fluoranthene	205-99-2	1.80E-06	1.80E-06	AP-42, 1.4-3
	Benzo(g,h,i)perylene	191-24-2	1.20E-06	1.20E-06	AP-42, 1.4-3
	Benzo(k)fluoranthene	205-82-3	1.80E-06	1.80E-06	AP-42, 1.4-3
	Chrysene	218-01-9	1.80E-06	1.80E-06	AP-42, 1.4-3
	Dibenzo(a,h)anthracene	53-70-3	1.20E-06	1.20E-06	AP-42, 1.4-3
	Dichlorobenzene	25321-22-6	1.20E-03	1.20E-03	AP-42, 1.4-3
	Fluoranthene	206-44-0	3.00E-06	3.00E-06	AP-42, 1.4-3
	Fluorene	86-73-7	2.80E-06	2.80E-06	AP-42, 1.4-3
	Formaldehyde	50-00-0	7.50E-02	7.50E-02	AP-42, 1.4-3
	Hexane	110-54-3	1.80E+00	1.80E+00	AP-42, 1.4-3
	Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	1.80E-06	AP-42, 1.4-3
	Naphthalene	91-20-3	6.10E-04	6.10E-04	AP-42, 1.4-3
	Phenanthrene	85-01-8	1.70E-05	1.70E-05	AP-42, 1.4-3
	Pyrene	129-00-0	5.00E-06	5.00E-06	AP-42, 1.4-3
	Toluene	108-88-3	3.40E-03	3.40E-03	AP-42, 1.4-3
	Arsenic	7440-38-2	2.00E-04	2.00E-04	AP-42, 1.4-4
	Beryllium	7440-41-7	1.20E-05	1.20E-05	AP-42, 1.4-4
	Cadmium	7440-43-9	1.10E-03	1.10E-03	AP-42, 1.4-4
	Chromium	7440-47-3	1.40E-03	1.40E-03	AP-42, 1.4-4
	Cobalt	7440-48-4	8.40E-05	8.40E-05	AP-42, 1.4-4
	Manganese	7439-96-5	3.80E-04	3.80E-04	AP-42, 1.4-4
	Mercury	7439-97-6	2.60E-04	2.60E-04	AP-42, 1.4-4
	Nickel	7440-02-0	2.10E-03	2.10E-03	AP-42, 1.4-4

Emission Source	Individual HAP/TAC	CAS	Natural Gas Emission Factor (lb/10 <sup>6</sup> scf natural gas combusted)		Emission Factor Source
			Uncontrolled	Controlled	
	Selenium	7782-49-2	2.40E-05	2.40E-05	AP-42, 1.4-4

$$E_{(HAP)} = (X) (EF \text{ lb}/10^6 \text{ scf}) (1 \text{ ton}/2000 \text{ lb.})$$

Where:  $E_{(HAP)}$  = emissions (tons)

X = the amount of natural gas combusted (10<sup>6</sup> scf)

[AP-42 EF (lb/MMBtu) converted to (lb/10<sup>6</sup> scf) natural gas combusted]

#### E14 and E15: Emission Factors for Tank and totes

Emission Source	Pollutant	Emission Factor (lb/gallon)	Emission Factor Source
E14 Admixture totes: No more than 7 totes, with a maximum of 2500 gallons.	VOC	N/A	Emissions accounted for in the working losses for the storage tanks below using AP-42 evaporative losses.
E15 Diesel Storage tank 10,000 gallons	VOC	N/A	Emissions accounted for in the working losses for the storage tanks below using AP-42 evaporative losses.

## 7. Insignificant Activities

Equipment	Quantity	PTE (tpy)	Basis for Exemption
E13 Water heater, Power Flame Burner, CR2-G-20B, natural gas indirect fired heat exchanger 2.8 MMBtu/hr, Pearson P-15-15W, Scotch Firebox	1	1.20 NO <sub>x</sub>	Regulation 1.02, Appendix A
E14-A Chemical Admixtures totes Master Glenium 7511 (850 gallons)	1	3.50E-05 VOC	Regulation 1.02, Appendix A
E14-B Chemical admixture tote Master Pozzoloth 700N (850 gallons)	1		
E14-C Chemical admixture tote Master Air AE 200 (500 gallons)	1		
E14-D Chemical admixture tote Master Set Delvo (500 gallons)	1		
E14-E Chemical admixture tote Master Matrix VMA 362 (362 gallons)	1		
E14-F Chemical admixture tote Master Set AC 122 (2500 gallons)	1		
E14-G Chemical admixture tote Master Set AC 534 (2500 gallons)	1		
E15 Diesel Fuel storage tank, 10,000 gal	1	0.0744 VOC	Regulation 1.02, Appendix A

- 1) Insignificant activities identified in District Regulation 1.02, Appendix A, may be subject to size or production rate disclosure requirements.
- 2) Insignificant activities identified in District Regulation 1.02, Appendix A shall comply with generally applicable requirements.
- 3) The owner or operator shall annually submit an updated list of insignificant activities that occurred during the preceding year, with the compliance certification due April 15<sup>th</sup>.
- 4) Emissions from Insignificant Activities shall be reported in conjunction with the reporting of annual emissions of the facility as required by the District.
- 5) The owner or operator may elect to monitor actual throughputs for each of the insignificant activities and calculate actual annual emissions, or use Potential to Emit (PTE) as the annual emissions for each piece of equipment.

- 6) The District has determined that no monitoring, record keeping, or reporting requirements apply to the insignificant activities listed, except for the equipment that has an applicable regulation and permitted under an insignificant activity (IA) unit.

## 8. Basis of Regulation Applicability for IA units

### a. Emission Unit IA1 – Storage Tanks

#### i. Equipment

Emission Point	Description	Applicable Regulation	Basis for Applicability
E14-A	Chemical admixture tote Master Glenium 7511 (850 gallons)	7.12	Regulation 7.12 establishes the requirements for new storage vessels for VOC compounds that commenced construction or modification on or after April 19, 1972.
E14-B	Chemical admixture tote Master Pozzolith 700N (850 gallons)		
E14-C	Chemical admixture tote Master Air AE 200 (500 gallons)		
E14-D	Chemical admixture tote Master Set Delvo (500 gallons)		
E14-E	Chemical admixture tote Master Matrix VMA 362 (362 gallons)		
E14-F	Chemical admixture tote Master Set AC 122 (2500 gallons)		
E14-G	Chemical admixture tote Master Set AC 534 (2500 gallons)		
E15	Diesel Fuel Storage tank (10,000 gallons)		

#### ii. Standards/Operating Limits

##### 1) VOC

- (a) Regulation 7.12, section 3.3 establishes equipment standards for VOC storage vessels

### b. Emission Unit IA2 – Water Heater

#### i. Equipment

Emission Point	Description	Applicable Regulation	Basis for Applicability
E13	Indirect fired heat exchanger - water heater, Power Flame	7.06	Regulation 7.06 establishes the



<b>Emission Point</b>	<b>Description</b>	<b>Applicable Regulation</b>	<b>Basis for Applicability</b>
	Burner, CR2-G-20B, natural gas 2.8 MMBtu/hr, Pearson P-15-15W, Scotch Firebox		requirements for indirect heat exchanger having input capacity of more than one million BTU per hour commenced after September 1, 1976.....

ii. **Standards/Operating Limits**

1) **Opacity**

- (a) Regulation 7.06, section 4.2 establishes opacity standards for the boilers.

2) **PM**

- (a) Indirect water heater, the 2.8 MMBtu/hr (boiler), installed in 1997, is subject to Regulation 7.06. The emission standard for PM is determined in accordance with Regulation 7.06, section 4.1.1 as follows:

Total Heat Input Capacity = 2.8 MMBtu/hr

PM limit = 0.56 lb/MMBtu

3) **SO<sub>2</sub>**

- (a) Indirect water heater, the 2.8 MMBtu/hr (boiler), installed in 1997, is subject to Regulation 7.06. The emission standard for SO<sub>2</sub> is determined in accordance with Regulation 7.06, section 5.1.1 as follows:

Total Heat Input Capacity = 2.8 MMBtu/hr

SO<sub>2</sub> limit = 1.0 lb/MMBtu